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Forest
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Record of Decision

South Unit Oil and Gas Development Final Environmental Impact Statement

**Duchesne Ranger District, Ashley National Forest
Duchesne County, Utah**



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Table of Contents

1.0 Introduction.....	1
2.0 Background.....	1
3.0 Purpose and Need	2
4.0 Issues Considered.....	3
5.0 Description and Rationale for the Decision	4
5.1 Selected Alternative	4
5.2 Rationale for Decision	6
5.3 Other Factors Considered in the Decision	7
6.0 Public Involvement	7
6.1 Scoping	7
6.2 Public comment on the DEIS.....	8
6.3 Cooperating Agencies	8
7.0 Alternatives	9
7.1 Alternatives Analyzed in Detail.....	9
7.2 Environmentally Preferred Alternative.....	11
7.3 Alternatives Considered But Eliminated From Detailed Study	12
8.0 Findings Required By Other Laws	13
9.0 How This Project Will Be Implemented.....	19
10.0 Appeal Provisions and Implementation Timelines	19
Appendix A: Mitigation, Monitoring and Operating Requirements included in the Selected Alternative.....	22
Air Quality	22
Cultural Resources	23
Modified Visual Quality Objectives	24
Paleontological Resources	24
Range	25
Surface Impacts – General/Multi-Purpose.....	25
Transportation	26
Water and Soils	27
Weeds.....	29
Wildlife	30

1.0 Introduction

This Record of Decision (ROD) documents my selection of operating requirements for future surface development on leases currently held by Berry Petroleum Company (Operator) on the Ashley National Forest. My decision includes mitigation measures, monitoring requirements, best management practices, and limitations on surface disturbance resulting from drilling and production activities. These requirements are to be incorporated into the Operator's Master Development Plan, and become conditions of approval (COAs) for all future Surface Use Plans of Operation and Applications for Permit to Drill submitted for the project area.

The area affected by this decision is located 11 miles south of Duchesne, Utah, in Township 6 South, Ranges 4 and 5 West. The project area covers approximately 25,900 acres in a portion of the Duchesne Ranger District referred to as the South Unit. The Operator obtained federal mineral leases in this area on or before July 1, 1998.

A Draft Environmental Impact Statement (DEIS) was issued for public review in March of 2010. The Final Environmental Impact Statement (FEIS) and this ROD are being released concurrently. Copies of these documents are available at the Ashley National Forest Supervisor's Office, 355 N. Vernal Avenue, Vernal, Utah (telephone 435-789-1181) and on the Forest website: www.fs.usda.gov/projects/ashley/landmanagement/projects.

Authority to approve or disapprove road construction or reconstruction in inventoried roadless areas has been reserved to the Secretary of Agriculture (Secretary's Memorandum 1042-156). This reservation of authority ensures that actions in inventoried roadless areas are carefully evaluated while long term roadless policy is developed and relevant court cases move forward. The Secretary reviewed this project in February 2012 and has chosen to re-delegate authority for the decision to the Forest Service. The Responsible Official is therefore the Forest Supervisor.

This is one of several decisions that are required before the Operator begins any new development in the lease area. Approval for site-specific oil and gas developments is conducted in cooperation with the Bureau of Land Management, via the Application for Permit to Drill (APD) process. More information on how this decision will be implemented is provided in Section 9.0 of this ROD.

2.0 Background

In January 2007, the Forest Service received a proposed Master Development Plan (MDP) from the Operator for oil and gas resource development on the Duchesne Ranger District of the Ashley National Forest. In the MDP, the Operator proposed to drill up to 400 oil and gas wells on up to 400 new well pads within its existing federal mineral leases. Approximately 100 miles of new access roads would be constructed, and up to 21 miles of existing roads would be upgraded to reach the proposed well pad sites. Construction and drilling would occur over a 20-year period. The Operator has chosen to submit an MDP for approval to facilitate full development of its leases.

The initial proposal was later refined during discussions between the Operator and the Forest Service. The refined project proposal is to construct up to 374 new well pads, and drill up to 400 wells using a combination of new and existing well pads. Approximately 77 miles of new access roads would be built and up to 20 miles of existing roads would be reconstructed to a higher standard. This was the development scenario analyzed for Alternatives 2 and 3 of the FEIS.

The use of MDPs for proposed oil and gas developments was established through Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases Order Number 1 (72 FR 44 [10308-10338] March 7, 2007). An MDP is a tool for analysis and evaluation of large-scale or multi-year oil and gas developments, allowing them to be submitted and evaluated up front, as a single development plan, rather than on a well-by-well basis.

MDPs address information common to multiple planned wells, including drilling methods, road systems and other surface infrastructure, and plans for future production. MDPs also facilitate the consideration of cumulative effects early in the process, enable broad and uniform application of identified mitigation measures, and facilitate better long-range planning for field developments, resulting in opportunities to minimize adverse impacts. An approved MDP also results in more timely and uniform processing of subsequent site-specific APDs and their associated Surface Use Plans of Operation (SUPOs).

The FEIS displays cumulative impacts expected for the field development plan as proposed by the Operator, as well as reasonable alternatives to the Operator's proposal. The FEIS process provided the Forest Service and public with an opportunity to evaluate and establish reasonable and consistent limits, expectations, and mitigation measures for resource protection before the individual site-specific well pad and road locations are proposed or approved for construction.

The Forest Service was the lead agency in preparing the FEIS. A third-party contractor, SWCA Environmental Consultants, with assistance from additional consultants and sub-contractors, conducted the analysis and prepared the FEIS in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and Forest Service policy. An interdisciplinary team of Forest Service specialists and specialists from the cooperating agencies oversaw all aspects of the environmental analysis process and approved study procedures, reports, and documentation as submitted by the contractors.

3.0 Purpose and Need

The purpose of this project is to respond to the Operator's proposed MDP by identifying terms and conditions to be applied to surface development activities within the project area. The Forest Service needs to develop mitigation, monitoring, and operating requirements in order to:

- minimize impact to surface resources
- avoid or reduce conflicts with other activities in the project area
- provide reasonable access to oil and gas resources in the Operator's existing leases.

When developing these requirements, the Forest Service must also consider previous management decisions including the Western Uinta Basin Leasing EIS and the Ashley Forest Plan; rights granted by the oil and gas leases; and Department and Agency direction regarding energy development.

4.0 Issues Considered

Issues raised through scoping reflect respondents' concerns about environmental, cultural, social and economic impacts that may result from oil and gas development in the project area. Public comment, in combination with Forest Service knowledge of resources in the area, was used to identify key issues to be addressed in the impact analysis. These issues are described in detail in Section 1.8 of the FEIS and are summarized as follows:

- Air quality, including impacts due to emissions and dust
- Soils and geology, including impacts to soil stability and erosion potential
- Paleontology, including potential damage to fossil resources in the area
- Water resources, including impacts to both surface and groundwater
- Vegetation and noxious weeds, including effects of removing vegetation and the potential for noxious weeds to become established or spread
- Wildlife, including effects on big game species, migratory birds, and species classified as Threatened, Endangered, Sensitive or Management Indicators.
- Grazing, including effects on rangeland capacity and productivity
- Cultural resources and tribal consultation, including disturbance of archeological sites or culturally sensitive areas
- Recreation, including effects on the amount or quality of recreation opportunity in the project area
- Potential wilderness areas and Inventoried Roadless Areas, including effects on undeveloped character and loss of wilderness potential
- Transportation, including concerns related to public access, safety, erosion potential, and management classification
- Visual resources, including ability to meet visual quality objectives in the Ashley Forest Plan and effects on recreation

- Social and economic values and environmental justice, including effects on the economic stability of Duchesne County, quality of life for area residents, job opportunities, and taxes and revenues accruing from oil and gas development

These issues were used to develop alternatives to the proposed action, select indicators to measure effects of each alternative, and establish appropriate mitigation and monitoring measures.

5.0 Description and Rationale for the Decision

After thorough review of cooperators, agency and public comments and the analysis presented in the FEIS, I have decided to implement Alternative 4, Minimize Surface Disturbance, with certain modifications. Throughout the remainder of this ROD, the modified Alternative 4 will be referred to as the Selected Alternative.

5.1 Selected Alternative

The Selected Alternative limits surface development to a maximum of 162 well pads (averaging four well pads per section, but up to six well pads per individual section where topography does not allow optimal center-of-quarter section pad placement). All wells must be drilled from those 162 well pads by use of techniques such as directional drilling and will use closed loop drilling systems to eliminate the need for reserve pits, reduce waste management costs, and reduce environmental risks including the potential for wildlife impacts and ground water contamination from leaking. Drilling is expected to occur over a 5- to 20-year period following this decision, with approximately 20-40 wells drilled per year. The Selected Alternative also includes the following:

- A total of 836 acres of short-term surface disturbance throughout the Project Area (including compressor stations) during the drilling phase.
 - Initially, each well pad could be 3 acres in size in order to accommodate multiple wells on the same well pad, for 493 acres of short-term disturbance.
 - 57 miles of new access road, and 20 miles of upgraded access road, with 327 acres of initial road disturbance. This includes 8 miles of new and upgraded roads that would extend beyond the Project boundary, outside of the Operator's lease area.
 - 10,000 horsepower (HP) of additional compression in the field on four compressor stations. Each compressor station is estimated to cover 4 acres.
- A total of 411 acres long-term surface disturbance during the production phase (including compressor stations), after successful interim reclamation.
 - 243 acres of long-term disturbance from well pads after interim reclamation.
 - 152 acres of long-term road disturbance after interim reclamation.
- Approximately 87 miles of new natural gas gathering pipeline. No oil pipelines are needed since crude oil within the project area is too viscous to pipe and must be transported by truck.
 - Low-pressure lines would be poly pipe installed on the surface (except as needed on a site-specific basis to resolve safety concerns).

- High-pressure lines would be made of steel and buried.
 - All lines will be co-located in access road rights-of-way except where safety or resource concerns or mitigation measures require alternate placement. Pipelines will therefore cause little or no additional surface disturbance.
- All mitigation, monitoring and best management practices in Appendix A of this ROD are also part of the Selected Alternative.

The Selected Alternative also includes the following modifications to Alternative 4:

- A maximum of 356 new wells will be drilled. The Operator's original MDP estimated that up to 400 wells would be needed in a full field development scenario, and this figure was used for cumulative effects analyses in the FEIS. However, since receiving the Operator's proposed MDP 44 new wells have been approved in separate NEPA decisions. Therefore only the remaining 356 wells are included in the Selected Alternative.
- Activities in IRAs require approval from the Secretary of Agriculture prior to implementation. On February 17, 2012, Secretary Vilsak approved a phased approach to the implementation of the project within IRAs. This phased approach would be implemented in the following manner:
 - Phase A would be implemented immediately within the confines of this decision. In this initial phase, development of the following areas would be allowed to occur (subject to the review process in Section 9.0 of this ROD):
 - The portion of the Right Fork Antelope Canyon IRA within Township 6S, Range 4W, Sections 4, 5, 7, 8, and 17.
 - All portions of the Cottonwood IRA that are within the project area.
 - The Secretary's decision re-delegated to the Under Secretary the authority to review and approve subsequent phases of the Berry Petroleum Master Development Plan. This re-delegation would allow development in Phases B and C to proceed once approved by the Under Secretary. No additional NEPA analysis would be required, unless significant changed conditions have occurred on the landscape or new information becomes available, such as changes in management direction or new technology that would allow reduced environmental impact. The new conditions or information will need to be evaluated to see if additional analysis and updating of the FEIS or ROD is required.
 - The Operator has the option of initiating either Phase B or Phase C next, depending upon results of Phase A development or other business considerations.
 - Phase B consists of the remainder of the Right Fork of Antelope Canyon IRA within the project area.
 - Phase C consists of all portions of the Sowers Canyon East IRA within the project area.

- SUPOs/APDs for subsequent phases will be processed after all wells in Phase A have been substantially drilled, subject to Under Secretary review and approval of additional phases as described above.
- All SUPOs/APDs will be reviewed as described in Section 9.0 of this ROD and may be approved without further NEPA analysis if they are consistent with this decision. Proposals that are inconsistent with this decision, or include new actions not analyzed in the supporting FEIS, will require additional review and appropriate NEPA documentation.

5.2 Rationale for Decision

I considered many factors when making this decision, including the project purpose and need; Forest Plan management direction; relevant laws, regulations, and policy directives; issues raised during public scoping; and environmental impacts. I believe the Selected Alternative achieves the best balance between allowing oil and gas development and minimizing or avoiding potential environmental impacts. An explanation of my rationale follows:

1. The Selected Alternative minimizes impacts to surface resources

My decision will result in less long-term surface disturbance than the other action alternatives considered (2.2% of the project area vs. 2.9% under Alt. 2 and 3), and consequently fewer impacts to resources including soils, vegetation, wildlife, water, and cultural resources. This will be accomplished by limiting the number of well pads in the project area, and using directional drilling whenever possible to access oil and gas reserves.

By requiring a phased approach to development in IRAs, my decision limits the spatial extent of construction activity in IRAs in any given year. This allows habitat in Phase B and C areas to remain available for wildlife use during the initial years of project implementation.

2. The Selected Alternative best reduces conflicts with other activities in the project area

My decision incorporates all feasible mitigation measures to reduce impacts to other major uses in the project area. It will impact fewer acres within livestock allotments, and includes requirements to limit damage to range improvements and to repair any fences or watering structures damaged by development operations. The phased development requirement allows recreation users, including hunters and outfitter/guide permittees, to anticipate areas of high oil and gas activity and plan their activities around those areas if desired.

3. The Selected Alternative provides reasonable access to oil and gas resources in the Operator's existing leases.

My decision recognizes the Operator's right to drill for, extract, and market oil and natural gas reserves under its existing federal mineral leases, and the positive effect this has on the local economy through job creation and minerals receipts. The Selected Alternative imposes some constraints on how this activity will proceed, while still allowing the Operator immediate access to lease areas with the highest energy resource potential and some flexibility to adjust future operations in response to economic conditions or other business considerations.

My decision is also consistent with the Forest Service objectives for minerals management (Forest Service Manual 2802), which include facilitating the orderly exploration, development, and production of energy resources in an environmentally sound manner and promoting self-sufficiency in energy resources essential for economic growth and national defense.

5.3 Other Factors Considered in the Decision

This project will be implemented over a long time period (up to 20 years for drilling, and up to 55 years including production). Although I am confident that my decision is based on the best available information as of this date, I also wanted to ensure there were meaningful opportunities to consider new knowledge that may be developed over the life of the project. This will be done via phased implementation and the site-specific SUPO/APD approval process described in Section 9.0 of this ROD.

I am aware that research into reclamation practices, air quality issues, and conservation measures related to energy development is ongoing, and over time may provide new tools for mitigating resource impacts. The Forest Service recently began a planning process to review and incorporate greater sage-grouse conservation measures into land management plans as needed, including the Ashley Forest Plan. These research, planning and policy activities have the potential to inform future management in the project area. Therefore I have designed the three phases in the Selected Alternative to defer the majority of development in sensitive portions of the project area (sage grouse habitat, Inventoried Roadless Areas, and crucial big game summer range; see FEIS figures 3.17, 3.18, 3.19 and 3.24) until later in the project implementation period, while still giving the Operator access to areas with a high probability of economic quantities of oil and gas in Phase A. As results of research and planning efforts become available, they can be used to inform subsequent SUPO approvals.

6.0 Public Involvement

In accordance with the NEPA and Forest Service policy, public and other agency involvement was initiated early in the environmental analysis process and continued through the completion of the FEIS.

6.1 Scoping

A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on August 29, 2007. Publication of this NOI initiated a 45-day scoping period that provided for acceptance of comments through October 12, 2007. During the scoping period, the Forest Service held public open houses on September 24, 25, and 26, 2007, in Salt Lake City, Duchesne, and Vernal, Utah, respectively. The Forest Service issued a news release to local media organizations notifying the public of the scoping period and open houses. A Scoping Notice was mailed to interested individuals, agencies, and organizations. All public notifications and documents for scoping were posted on the ANF projects webpage: <http://www.fs.fed.us/r4/ashley/projects>. Scoping comments were received from 10 individuals and organizations. The scoping comments and

summaries of issues identified during scoping are provided in the Scoping Report, Ashley National Forest South Unit Oil and Gas EIS (on file at the ANF Office in Vernal, Utah).

Significant issues related to six resources (air quality, cultural resources, recreation, socioeconomics, soils, and wildlife) were identified during scoping. The interdisciplinary team (IDT) brought forward additional issues to be considered during the formulation of alternatives. For each issue, indicators were identified to measure direct, indirect, and/or cumulative impacts and to determine whether subsequent mitigation may be applied for an issue or resource. Public issues identified from the scoping process were used to guide the completion of the Draft EIS.

6.2 Public comment on the DEIS

The Draft EIS was issued in February 2010 and the Notice of Availability was published in the Federal Register on March 5, 2010. The public had 60 days to comment on the Draft EIS. A public meeting was held during the 60-day public comment period on March 18, 2010 at the ANF Duchesne Ranger District in Duchesne, Utah. No members of the public attended the meeting.

During the 60-day public comment period, the Forest Service received comment letters from the following entities:

- Duchesne County
- Uintah County
- Wasatch County
- Central Utah Water Conservancy District
- State Of Utah
- U.S. Environmental Protection Agency
- U.S. Dept. of Interior, Bureau of Land Management
- Utah Environmental Congress, WildEarth Guardians, Southern Utah Wilderness Alliance, Western Resource Advocates, and Western Watersheds Project (joint letter)

A total of 237 substantive comments were identified in these letters. The Forest Service reviewed and analyzed all public comments received to determine whether we needed to: 1) modify existing alternatives; 2) develop new alternatives; 3) supplement, improve or modify the analysis; or 4) make factual corrections. The Response to Comments (RTC) submitted on the Draft EIS is contained in Appendix E of the FEIS.

6.3 Cooperating Agencies

As the lead agency for the Final EIS, the Forest Service invited other Federal and State entities with jurisdiction by law or having special expertise with respect to the environmental issues to be cooperating agencies. Input from these entities helped define the issues and alternatives considered in the EIS process. The cooperating agencies for this project were:

- The State of Utah

- The Bureau of Land Management

7.0 Alternatives

7.1 Alternatives Analyzed in Detail

In response to agency and public issues and in conformance with NEPA analysis requirements, a range of alternatives were developed and analyzed in the FEIS. These included three action alternatives and a no action alternative. Chapter 2 of the FEIS describes each alternative in detail, including mitigation measures common to all action alternatives. A summary of the key features of and issues addressed by each alternative is provided below.

7.1.1 Alternative 1: No Action

The No Action Alternative provides a baseline against which to measure and disclose environmental effects from the action alternatives. Under the No Action Alternative, no additional surface activities related to oil and natural gas exploration or development would be authorized in the project area. Current management plans would continue to guide management of the Project Area. Previously approved oil and natural gas exploration and surface disturbance would continue, including 44 new wells approved via separate NEPA decisions after receiving the Operator's proposed MDP.

7.1.2 Alternative 2: Proposed Action

This alternative represents the Operator's proposed Master Development Plan (MDP). It includes drilling up to 400 new oil and gas wells within the Project Area during a 5- to 20-year period following project approval. This would involve construction of up to 374 new well pads, as well as drilling some new wells on existing well pads. According to the Operator, this represents a full development scenario based on currently known geologic and reservoir properties. It is possible that the Operator would drill fewer than 400 wells because of geologic and market uncertainties. The proposed oil and gas wells would be drilled to an average depth of 6,000 feet.

All of the proposed wells would be drilled on existing federal mineral leases held by the Operator. In general, in the northern portion of the Project Area, where economic quantities of oil and gas are more likely to be present, wells would be drilled on approximately 40-acre surface spacing. In the southern portion of the Project Area the potential for occurrence of economic quantities of oil and gas is believed to be lower, and a more exploratory spacing of approximately 160 acres is envisioned.

Per well disturbance estimates at 40-acre well density are based on a 2.5-acre well pad. Approximately 77 miles of new access roads would be constructed, and 20 miles of existing roads would be upgraded, to provide safe and reasonable access to the proposed well pad sites. These roads would utilize a 35-foot-wide construction ROW during construction. The project would include approximately 107 miles of gas gathering pipelines. After construction is complete and gas gathering lines are installed, approximately 13 feet would be reclaimed leaving

a 22-foot-wide road surface. The Operator also proposes up to four compressor stations (2,500 HP each) to be located within or near the Project Area.

New, short-term surface disturbance would be approximately 1,361 acres. Over the 5- to 20-year drilling phase, approximately 5.2% of the Project Area would be affected by short-term disturbance at one time or another. Interim reclamation would occur after a well is drilled and completed, reducing well pad disturbance to approximately 1.0 acre during production. Total long-term disturbance associated with project development is estimated to be approximately 595 acres (1 acre per well plus associated facilities, including roads) after interim reclamation. Within the entire Project Area, approximately 2.3% of the surface would be disturbed as a result of project development for the life of the project (LOP). When existing disturbance, approximately 158 acres, is taken into account, the total long-term surface disturbance under the Proposed Action would be 2.9% of the area. Final reclamation would occur after a well is no longer productive.

Design elements and mitigation measures were included in the Proposed Action in order to avoid or minimize potential adverse environmental effects. These measures are listed in Chapter 2, section 2.2.2 of the FEIS.

7.1.3 Alternative 3: Phased Drilling

The purpose of this alternative is to allow drilling to extract oil and gas resources while adding additional protection measures for wildlife and sensitive soil resources in the Project Area. This alternative would require a phased approach to drilling wherein one option for the Operator would be to drill leaseholds from east to west and north to south within the Project Area. For example, all wells in an eastern swath would be drilled first before the rigs could move farther west.

Each swath could be up to 10 square miles in size. The Operator would need to determine a drilling swath and present a Plan of Development (POD) to the Forest Service and cooperating agencies for review prior to development. Once the Forest Service approves a POD boundary and components, development could proceed in that area. The purpose of a phased drilling approach would be to protect migrating mule deer by concentrating construction activities into smaller areas while minimizing noise, traffic, and other construction-related activities in large portions of the Project Area at any given time.

Under Alternative 3, a separate POD would be required for drilling in crucial mule deer winter range and summer range as these areas do not have seasonal closures, per the lease stipulations. Also, no well pads would be placed on slopes greater than 25%. Wells could be directionally drilled from less steep locations to extract resources within these areas. The purpose of this requirement would be to minimize the potential for erosion, gullying, and sedimentation into streams.

New, short-term surface disturbance would be approximately 1,355 acres. Over the 5- to 20-year drilling phase, approximately 5.2% of the Project Area would be affected by short-term disturbance at one time or another. Total long-term disturbance associated with project development is estimated to be approximately 590 acres (1 acre per well plus associated

facilities, including roads) after interim reclamation. Within the entire Project Area, approximately 2.3% of the surface would be disturbed as a result of project development for the LOP. When existing disturbance, approximately 158 acres, is taken into account, the total long-term surface disturbance under the Alternative 3 would be 2.9% of the area. Final reclamation would occur after a well is no longer productive, as described for the Proposed Action.

In addition to the design elements included in the Proposed Action, the following Best Management Practices (BMPs) would be evaluated for implementation at each development location. These could be evaluated on a POD or individual location basis. Rationale for not including any of these BMPs would be provided by the Operator and evaluated by the Forest Service prior to approval of the POD or individual location.

1. Paint production facilities to minimize contrast with the background. This would minimize visual contrast by making production facilities less noticeable.
2. Drill multiple wells on individual well pads to reduce habitat fragmentation by reducing roads.
3. Centralize production facilities so there are fewer disturbances to wildlife from traffic.
4. Use closed loop drilling to eliminate reserve pits, reduce closure and waste management costs, and reduce potential for contamination from leaking.
5. Minimize topsoil removal during drilling activities to minimize disturbance to sensitive soils and vegetation.
6. Install raptor perch avoidance devices on existing power poles and tank batteries to reduce potential predation of Forest Service sensitive species, including greater sage-grouse.

7.1.4: Alternative 4: Minimize Surface Disturbance

This alternative would use directional drilling in order to reduce surface disturbance. There would be a maximum of 162 well pads, and consequently fewer miles of road and pipeline construction needed to access the pads. Section 5.1 of this ROD summarizes key elements of Alternative 4, and Appendix A lists the applicable BMPs and mitigation measures. A detailed description of this alternative is provided in Section 2.2.4 of the FEIS.

7.2 Environmentally Preferred Alternative

The CEQ regulations for implementing NEPA require that the ROD specify “the alternative or alternatives which were considered to be environmentally preferable” (40 CFR 1505.2(b)). Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 Federal Register 18026, 18027 (1981)).

Alternative 1, No Action, would result in the least disturbance to surface resources. However, the leases held by the Operator give them certain legal rights, including reasonable access to the

energy reserves underlying their lease area. The No Action alternative is not consistent with these legal rights.

Of the three action alternatives evaluated in the FEIS, Alternative 4 is environmentally preferable because it will result in the least surface disturbance and includes all mitigation measures identified as feasible in the analysis process.

7.3 Alternatives Considered But Eliminated From Detailed Study

Several additional alternatives were proposed in public comments or raised during IDT discussions. These alternatives were ultimately eliminated from detailed analysis because they were impractical, duplicative of alternatives already being analyzed, or outside the scope of this project (see FEIS Section 2.3). A summary of alternatives considered but not carried forward for detailed analysis follows:

1. *Drilling up to 648 wells.* This was suggested to represent full field development using 40-acre well spacing. However it was not considered a reasonably foreseeable development scenario, since the Operator anticipates drilling a maximum of 400 wells based on available geologic information and terrain constraints.
2. *Capping acres of surface disturbance.* This would involve limiting the acres of disturbance that could occur, without specifying how many wells, well pads or roads would be constructed. This approach was not carried forward because the same objective (limiting surface disturbance) can effectively be met by addressing the quantity and location of constructed features, as was done in Alternative 4.
3. *Secondary oil recovery.* This involves additional resource recovery processes which are not part of the Operator's proposal, and are not reasonably foreseeable development actions at this time. If the Operator does propose this in the future, additional NEPA analysis would be required.
4. *Horizontal drilling.* This drilling method would extend the reach of wells drilled from a single location, thereby reducing the number of well pads needed and allowing more flexibility in well pad locations. However it is not feasible with current technology, given the nature and depth of the target formations in the project area.
5. *No Surface Occupancy (NSO) in Inventoried Roadless Areas.* This alternative would not allow any surface features to be constructed within IRAs. The Operator would only be able to extract oil and gas reserves that could be reached via directional drilling from pads located outside the IRAs. Given the extent and configuration of IRAs in the lease area, this would mean a substantial reduction in the number of wells that could be drilled (from 400 to 258) and associated surface disturbance. However it would also make a large portion of the oil and gas resources in the project area unavailable for development.

The leases held by the Operator are subject to stipulations identified in the Western Uinta Basin Leasing EIS and ROD. These stipulations include designation of certain areas as NSO, and were fully disclosed to the Operator prior to purchasing the leases. Once a lease has been purchased,

the owner has a legal right to develop the oil and gas resources in the lease area. Adding additional large-scale NSO designations now would violate the terms of the existing leases by unreasonably restricting access to target resources. Therefore this alternative would not meet the purpose and need for the project.

6. Alternative access methods. The IDT explored various alternatives to road construction, including helicopter-supported drilling, cross-country travel without using constructed roads, and use of lower-standard temporary roads. None of these options were determined to be feasible due to the nature of the equipment needed to drill in the project area, the rugged topography involved, and the expected life of the project. The various alternate transportation methods considered would ultimately have had greater resource impacts and safety concerns than construction of temporary roads as described in the action alternatives.

8.0 Findings Required By Other Laws

I have determined that my decision is consistent with all applicable laws, regulations, and agency policy. A summary of the findings required by major environmental laws follows:

Consistency with the Ashley National Forest Land and Resource Management Plan (Forest Plan) and Western Uinta Basin Oil and Gas Leasing ROD

The Forest Plan provides for integrated guidance for all natural resource management activities as required by the National Forest Management Act of 1976 (NFMA). The Forest Plan divides the Forest into unique management areas (MAs) with specific management prescriptions related to minerals activities for each area. The MAs within the Project Area, their associated management prescriptions for minerals, and acreages are summarized in Table 1.

Table 1. Forest Plan Management Areas in the Project Area.

Management Area	Prescription for Minerals Activities	Acres in Project Area
D: High forage production and livestock utilization	Sites on primary and secondary range will be rehabilitated to improve forage production.	4,538
E: Wildlife habitat emphasis	May have seasonal restrictions for access or seismic work. No surface occupancy may be applied.	2,658
N: Range of resource uses and outputs. Commodity production modified for amenity production.	No restrictions other than what is in the Standards and Guidelines.	18,174
90: Private land	N/A	220

Potential management conflicts and associated mitigation for MAs D and E are discussed in the livestock grazing and wildlife sections of the FEIS (Sections 3.9 and 3.10). There would be no management conflicts for MA N, which is managed for a range of resource uses and outputs.

The Western Uinta Basin Oil and Gas Leasing EIS ROD (Forest Service 1997) amended the Forest Plan to include the leasing of federal oil and gas resources and subsequent development of oil and gas wells on Forest Service-administered lands. Management requirements contained in that amendment were incorporated into all leases in the current project area.

I carefully reviewed the Forest Plan, including the leasing ROD and associated amendment, when formulating my decision. I have determined that the Selected Alternative is consistent with the goals, objectives, and standards and guidelines of the Forest Plan.

The National Environmental Policy Act of 1969 (NEPA)

The purposes of this Act are “To declare a national policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality” (42 U.S.C. Sec. 4321). This FEIS and ROD were prepared using NEPA and CEQ direction, in order to comply with the Act.

The National Forest Management Act (NFMA) of 1976 (PL 4-588)

This Act guides development and revision of National Forest Land and Resource Management Plans and contains regulations that prescribe how land and resource planning is to be conducted on National Forest System lands to protect resources. My decision complies with NFMA.

The Endangered Species Act (ESA) of 1973, as amended

The purposes of this Act are to provide for the conservation of threatened and endangered species and their habitats. The Forest is required by the ESA to ensure that any actions it approves will not jeopardize the continued existence of threatened and endangered species or result in the destruction or adverse modification of critical habitat.

Biological Assessments were prepared for threatened, endangered or proposed species potentially affected by this project. It was determined that there would be no effect on any listed or proposed plant or terrestrial animal species, based on lack of known occurrences or suitable habitat. Four endangered fish species occur downstream of the project area, in the Colorado River system: the humpback chub, bonytail chub, Colorado pikeminnow and razorback sucker. There is no suitable habitat in the project area, but the Selected Alternative includes a water depletion. Therefore, a “may affect, likely to adversely affect” determination was made for these species. Informal consultation with the Fish and Wildlife Service was completed, and concurrence on these determinations was received on February 9, 2012.

Biological Evaluations were prepared for species designated as sensitive in Region 4 of the Forest Service, to determine whether or not this project would result in a trend toward federal listing under the ESA. It was determined that the project may impact individual flammulated owls, northern goshawks, greater sage-grouse, spotted bats, and Townsend’s big-eared bats but is not likely to cause a trend toward federal listing or a loss of viability for any of these species.

The same determination was made for three sensitive plants: Untermann's daisy, Goodrich's blazingstar, and Green River green-thread.

The Migratory Bird Treaty Act (MBTA) of 1918 and Executive Order 13186

The purpose of this Act is to establish an international framework for the protection and conservation of migratory birds. The MBTA implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds, including nests and eggs, is unlawful. A list of neotropical migratory birds protected by the MBTA is provided in 50 CFR 10.13.

In January 2001, the President signed Executive Order 13186 outlining responsibilities of federal agencies to protect migratory birds under the MBTA. As a complementary measure to the Executive Order, the Forest Service and the U.S. Fish and Wildlife Service entered into a Memorandum of Understanding designed to strengthen migratory bird conservation through enhanced collaboration between the agencies, in coordination with state, tribal and local governments.

The FEIS addresses impacts to migratory birds in Chapter 3, Section 3.9. My decision complies with the MBTA and Executive Order 13186.

The Federal Water Pollution Control Act of 1972 (PL 92-500) as amended in 1977 (PL 95-217) and 1987 (PL 100-4), also known as the federal Clean Water Act

The primary objective of this Act is to restore and maintain the integrity of the nation's waters by: 1) eliminating the discharge of pollutants into the nation's waters; and 2) achieving water quality levels that are fishable and swimmable. This Act establishes a non-degradation policy for all federally proposed projects to be accomplished through planning, application and monitoring of Best Management Practices (BMPs). Identification of BMPs is mandated by Section 319 of the Water Quality Act of 1987, which states "It is national policy that programs for the control of nonpoint sources of pollution be developed and implemented." My decision complies with the Clean Water Act.

Federal Noxious Weed Act of 1974

This Act provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. The Act requires that each federal agency develop a management program to control undesirable plants on federal lands under the agency's jurisdiction; establish and adequately fund the program; implement cooperative agreements with state agencies to coordinate management of undesirable plants on federal lands; establish integrated management systems to control undesirable plants targeted under cooperative agreements.

The alternatives analyzed in the FEIS comply with the Federal Noxious Weed Act. Under separate planning activities, the agency has developed a management program to control undesirable plants on the Ashley National Forest. My decision considered and analyzed the risk

of spreading noxious weeds and is consistent with ongoing federal programs to control noxious weeds.

The Preservation of American Antiquities Act of 1906

This Act makes it illegal to "...appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned by the Government of the United States..." Cultural resource surveys will be completed prior to any ground disturbing activity and any cultural resources identified will be protected as required through consultation with the Utah State Historic Preservation Office (SHPO) and the terms of the Programmatic Agreement (#AS-11-00017) developed in conjunction with this project. Therefore my decision complies with this Act.

The National Historic Preservation Act (NHPA) of 1966, as amended

This Act requires federal agencies to consult with state and local groups before nonrenewable cultural resources, such as archaeological sites and historic structures are damaged or destroyed. Section 106 of this Act requires federal agencies to review the effects that project proposals may have on the cultural resources in the project area. It requires agencies to consider the effects of undertakings on properties eligible to or listed in the National Register of Historic Places by following the regulatory process specified in 36 CFR 800.

Actions permitted, approved, or initiated by the Forest Service and that may affect cultural resources must comply with provisions of the NHPA of 1966, as amended, and as implemented by federal guidelines 36 CFR 800. Section 106 of the NHPA requires a federal agency to take into account the effects of the agency's undertaking on properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP).

In consultation with the Utah State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Northern Ute Tribe, the Forest has developed and is implementing a Programmatic Agreement (#AS-11-00017) to fulfill the requirements of Section 106 of the National Historic Preservation Act. The Programmatic Agreement requires identification and documentation of cultural resources and outlines ways the Forest will avoid, minimize, or mitigate adverse effects to National Register eligible cultural resources before site specific activities can be authorized. The Programmatic Agreement implements Section 106 of the National Historic Preservation Act and becomes a substitute for the standard 36 CFR 800 process, as authorized under 36 CFR 800.14(a). The Forest is required to fulfill the stipulations of the Programmatic Agreement before authorizing a Surface Use Plan of operation or an Application for Permit to Drill (APD). Therefore, my decision fulfills the requirements of this act.

The Archaeological Resources Protection Act (ARPA) of 1979

ARPA prohibits the excavation, removal, damage, or destruction of archaeological resources located on public lands, and specifies civil and criminal penalties for persons found guilty of violations under the act. Authorized excavation and removal of archaeological resources requires

a permit issued by the federal agency. ARPA, as referenced in the Freedom of Information Act (FOIA) (5 U.S.C. 552[b]), protects the confidentiality of archaeological sites from public disclosure. Other provisions of the law promote communication and cooperation between federal agencies, Indian tribes, professional archaeologists, and private individuals for the protection of archaeological resources on public lands. The procedures for implementing ARPA are outlined in the U.S. Code of Federal Regulations (36 CFR Part 296).

Federal statutes covering theft and destruction of government property also prohibit the removal of, and damage or destruction of, archaeological resources on public lands (see 18 U.S.C. 641 and 18 U.S.C. 1361, respectively). Cultural resource survey, artifact collection, and archaeological excavation associated with this decision require the issuance of a Forest Service Special Use Permit that meets the requirements of ARPA. Therefore my decision fulfills the requirements of this act.

Consumers, Civil Rights, Minorities, and Women

The need to conduct an analysis of this potential impact is required by Forest Service Manual and Forest Service Handbook (FSH) direction. The civil rights of individuals or groups, including minorities, people with disabilities, and women, are not differentially affected by the Selected Alternative. My decision complies with this direction.

Executive Order 12898

Executive Order (EO) 12898 directs each federal agency to make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. An associated memorandum emphasizes the need to consider these types of effects during NEPA analysis. The Selected Alternative would not disproportionately adversely affect minority or low income populations (including American Indian Tribal members). My decision complies with this EO.

Executive Order 13443

The purpose of EO 13443, signed in 2007, is to direct federal land management agencies to facilitate expansion and enhancement of hunting opportunities and the management of game species and their habitats. The E.O. directs agencies to evaluate the effect of agency actions on trends in hunting participation and, where appropriate to address declining trends, implement actions that expand and enhance hunting opportunities for the public; consider the economic and recreational values of hunting in agency actions, as appropriate; manage wildlife and wildlife habitats on public lands in a manner that expands and enhances hunting opportunities, including through the use of hunting in wildlife management planning; work collaboratively with State governments to manage and conserve game species and their habitats in a manner that respects private property rights and state management authority over wildlife resources; establish short and long term goals, in cooperation with state and tribal governments, and consistent with agency missions, to foster healthy and productive populations of game species and appropriate opportunities for the public to hunt those species; ensure that agency plans and actions consider

programs and recommendations of comprehensive planning efforts such as state Wildlife Action Plans, the North American Waterfowl Management Plan, and other range-wide management plans for big game and upland game birds; seek the advice of state and tribal fish and wildlife agencies, and, as appropriate, consult with the Sporting Conservation Council and other organizations, with respect to the foregoing federal activities.

The selected alternative would not reduce hunter access. The phased approach to project implementation maximizes hunting opportunities in comparison to the other action alternatives. Harvesting of game species may vary depending on location and timing relative to drilling and production activities. My decision complies with EO 13443.

Ashley National Forest Responsibilities to Federally Recognized Tribes

American Indian Tribes are afforded special rights under various federal statutes including: the National Historic Preservation Act (NHPA) of 1966 (as amended); the National Forest Management Act of 1976 (P.L.4588); the Archaeological Resources Protection Act of 1979, and implementing regulations 43 CFR Part 7; the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, and implementing regulations 43 CFR Part 10; the Religious Freedom Restoration Act of 1993 (P.L. 103141); and the American Indian Religious Freedom Act (AIRFA) of 1978. Federal guidelines direct federal agencies to consult with American Indian Tribal representatives who may have concerns about federal actions that may affect religious practices, other traditional cultural uses, as well as cultural resource sites and remains associated with American Indian ancestors. Any Tribe whose aboriginal territory occurs within a project area is afforded the opportunity to voice concerns for issues governed by NHPA, NAGPRA, or AIRFA.

Federal responsibilities to consult with Indian Tribes are also included in Interior Secretarial Order 3175 of 1993 and Executive Orders 12875, 13007, 12866, and 13084. E.O. 12875 calls for regular consultation with tribal governments; and E.O. 13007 requires consultation with Indian Tribes and religious representatives on the access, use, and protection of Indian sacred sites. E.O. 12866 requires that federal agencies seek views of tribal officials before imposing regulatory requirements that might affect them; and E.O. 13084 provides direction regarding consultation and coordination with American Indian Tribes relative to fee waivers. E.O. 12898 directs federal agencies to focus on the human health and environmental conditions in minority and low-income communities, especially in instances where decisions may adversely impact these populations (see Executive Order 12898 above). The 40 CFR 1500-1508 regulations of the NEPA invite American Indian tribes to participate in forest management projects and activities that may affect them.

The Forest invited the Northern Ute Tribe to submit comments during scoping and DEIS review periods and consulted with the Tribe during the development of a Programmatic Agreement that ensures the Forest will fulfill the requirements of Section 106 of the National Historic Preservation Act. The Forest also invited the Southern Ute Indian Tribe, the Ute Mountain Tribe, and the Hopi Indian Tribe to participate in consultation on this project because they potentially have cultural traditions tying to the area. Therefore I have complied with this direction.

9.0 How This Project Will Be Implemented

As mentioned in Section 1.0, this is one of several decisions that must be made before the Operator can develop its leases. The Selected Alternative provides the operating framework for subsequent approvals, but does not directly authorize ground disturbing activities. Site-specific approval for individual well sites, well pads, and temporary or reconstructed roads occurs via Applications to Drill (APDs) and Surface Use Plans of Operation (SUPOs), in coordination with the Bureau of Land Management (BLM).

The next step is for the Operator to submit SUPOs / APDs for individual site-specific wells, well pads, and road locations outside of IRAs, or within the portion of the Project Area designated for Phase A development (see Section 5.1). The submitted documents will be reviewed by the Forest to verify they comply with all aspects of the Selected Alternative. SUPOs that are consistent with this decision may be approved without further NEPA analysis. If the SUPO is inconsistent with this decision, or contains actions that were not analyzed in the FEIS, additional NEPA documentation or environmental compliance is required prior to approval. Changed conditions, including new technologies or management direction which would result in better mitigation or avoidance of impacts, may also result in revised or additional operating requirements for site-specific SUPOs. Additional NEPA analysis will be completed as necessary to incorporate any new requirements.

Once the review is done, and any additional documentation or environmental compliance has been completed, the Forest Service will make an independent decision regarding approval of the submitted SUPO and will notify the BLM and the Operator of its decision. The BLM is responsible for issuing the permit to drill, and may choose to include additional mitigation measures or BMPs along with those specified by the Forest Service.

Decisions on site-specific proposals for subsequent phases will not be made until Phase A drilling is nearly complete. The review and approval process will be as described above.

The Operator is also responsible for obtaining all necessary federal, state and local permits prior to initiating new development in its lease area.

10.0 Appeal Provisions and Implementation Timelines

This decision is subject to appeal pursuant to 36 CFR 215.11 by individuals or organizations meeting the requirements of 36 CFR 215.13. Any appeal must meet the requirements at 36 CFR 215.14. A written appeal must be submitted within 45 days following the publication date of the legal notice of this decision in the newspaper of record, the *Vernal Express*, Vernal, Utah. It is the responsibility of the appellant to ensure their appeal is received in a timely manner. The publication date of the legal notice of the decision in the newspaper of record is the exclusive means for calculating the time to file an appeal. Appellants should not rely on date or timeframe information provided by any other source.

The appeal must be filed with the Appeal Deciding Officer in writing. It is the appellant's responsibility to provide sufficient project or activity-specific evidence and rationale, focusing on the decision, to show why the decision should be reversed. At a minimum, the appeal must meet the content requirements of 36 CFR 215.14, and include the following information:

- The appellant's name and address, with a telephone number if available;
- A signature, or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal);
- When multiple names are listed on an appeal, identification of the lead appellant and verification of the identity of the lead appellant upon request;
- The name of the project or activity for which the decision was made, the name and title of the Responsible Official, and the date of the decision;
- The regulation under which the appeal is being filed, when there is an option to appeal under 36 CFR 215;
- Any specific change(s) in the decision that the appellant seeks and rationale for those changes;
- Any portion(s) of the decision with which the appellant disagrees, and an explanation for the disagreement;
- Why the appellant believes the Responsible Official's decision failed to consider the substantive comments; and
- How the appellant believes the decision specifically violates law, regulation, or policy

Contact Person: for more information about this project, contact:

David Herron, Project Lead
 85 West Main, P.O. Box 981
 Duchesne, UT 84021
 telephone: 435-781-5218
 e-mail address: daherron@fs.fed.us

Written appeals must be submitted to:

For Postal Delivery:	For Hand Delivery:
USDA Forest Service, Intermountain Region ATTN: Harv Forsgren, Appeals Deciding Officer 324 25 th Street Ogden, UT 84401	USDA Forest Service, Intermountain Region ATTN: Harv Forsgren, Appeals Deciding Officer Federal Building, 324 25 th Street Ogden, UT Business Hours: 8:00am – 4:30 pm MST, Monday through Friday, excluding holidays

Appeals may be FAXed to (801) 625-5277.

Electronic appeals must be submitted in a rich text format (.rtf) or Microsoft Word (.doc) format in an e-mail message to appeals-intermtn-regional-office@fs.fed.us. The e-mail subject line should contain the name of the project being appealed. An automated response should confirm your electronic appeal has been received. In cases where no identifiable name is attached to an electronic message, a verification of identity will be required. A scanned signature is one way to provide verification.

If no appeal is received, implementation of this decision may occur on, but not before 5 business days from the close of the appeal filing period. If an appeal is received, implementation may not occur for 15 days following the date of the appeal disposition.

The FEIS and supporting documentation are available for public review at the Ashley National Forest Supervisor's Office, 355 N. Vernal Avenue, Vernal, UT (telephone: 435 789-1181) and the Duchesne Ranger District Office, 85 W. Main, Duchesne, UT (telephone: 435-738-2482).



MARIE-LOUISE SMITH
ACTING FOREST SUPERVISOR
ASHLEY NATIONAL FOREST

2/21/2012
Date

Appendix A: Mitigation, Monitoring and Operating Requirements included in the Selected Alternative

The Selected Alternative includes mitigation, monitoring and operating requirements identified in the FEIS as common to all alternatives or specific to Alternative 4. These requirements are summarized below for ease of reference. Sections 2.2.2 and 2.2.5 and the resource-specific impact analyses in Chapter 3 of the FEIS should be consulted for context and detailed implementation guidance.

Air Quality

- The Operator will use drill rigs that meet the EPA Tier II emission standards or better for the life of the project (LOP).
- The Operator will conduct green completions to minimize natural gas/methane and volatile organic compound (VOC) emissions. A green completion involves capturing natural gas that initially flows from a well after flowback of water has finished. The Operator will direct natural gas flowing from newly completed wells into the sales pipeline, or use it for fuel gas for on-site heaters and the pump jack engine. This is accomplished using a separator to separate water, sand, oil, and gas initially coming out of the well.
- The Operator will install pump jack engines that meet the applicable New Source Performance Standards (NSPS) emission limits for pump jack engines.
- The Operator will install emission controls on condensate tank batteries and dehydrators with control efficiencies of greater than 95%.
- The Operator will test the efficiency of controls annually and ensure that flaring/combustors meet >90% efficiency.
- The Operator will install viton/teflon seals for chemical and cold weather service (Enardo thief hatches and Stack Vents) on hatches and valves.
- The Operator will install three phase separators on its gas pipelines at the compressor stations, which will stabilize the natural gas liquids at a much lower pressure, and re-route the majority of VOC flash emissions back into the gas pipeline, instead of dumping them into the condensate tanks, which are at atmospheric pressure. The resulting reroute of the VOC flash gas into the gas pipeline and reduced pressure drop at the condensate tanks will greatly reduce VOC flash emissions at the tanks.
- The Operator will ensure that the design of VOC collection systems (piping, valves, etc.) are adequate for control systems for the LOP.
- The Operator will install low/no bleed pneumatic controllers and valves on all new equipment.
- The Operator will route pneumatic pump emissions to either emission control devices, or back into the process stream to eliminate emissions.
- The Operator will install secondary control systems on project-related compressor engines to reduce emissions. Potential secondary control systems include the following.

- Installation of new ultra lean burn engines with oxidation catalysts and turbochargers. These engines have been engineered to significantly reduce emissions through air-fuel ratio modifications, modified piston design, and utilize oxidation catalysts as a secondary control measure to further reduce emissions from the engines.
 - Installation of rich burn engines equipped with three-way catalysts as a secondary control measure. These engines with the secondary control device can achieve substantially lower emissions than older engines not equipped with secondary controls.
- The Operator will implement a leak detection program that is consistent with EPA Method 21, once gas production has ramped up to the point where compression is needed.
 - Leak detection surveys would be conducted on a quarterly basis, the results documented, and repairs made on a timely basis where leaks are detected.
 - A Leak Detection Plan would be submitted to the Forest Service and/or EPA for approval.
 - The leak detection limit would be 10,000 parts per million (ppm) of methane. If a leak is discovered during an inspection, the leaking piece of equipment would be tagged, and the appropriate personnel would be notified. The tag would remain in place until the leak is repaired and re-sampled to verify the leak is no longer occurring.
 - Leaks at or above 10,000 parts per million (ppm) would be repaired within 15 days. An exception to this repair schedule would be if the leak is occurring on an essential component, where the repair would require the shutdown of a critical process unit that would affect operation of the proposed project. An example would be the shutdown of a compressor serving 25% of the field. If a leak above 10,000 ppm is discovered on a critical process unit, the leak would be repaired during the next scheduled shut down of the equipment for maintenance or other repairs, but would not exceed one year from the date of leak discovery.
 - Leak findings and repairs would be documented.
- The Operator will install and operate an ozone monitoring station southwest of Roosevelt, Utah, on Operator-owned property. The ozone monitoring program will be consistent with those managed by the State of Utah and the EPA in the Uintah Basin, and data collected will be provided to the State and the EPA.
- Reduce fugitive dust from roads by observing speed limits and applying water as needed. Water used for this purpose will be fresh water, not production water. If water application does not adequately reduce fugitive dust, the use of magnesium chloride (MgCl) or other dust suppression methods would be considered; however, MgCl should not be applied within 100 feet of perennial streams, wetlands, springs, wet areas, or ambient water. In proximity to such settings gravel surfacing or non-chloride dust suppressants would be considered.

Cultural Resources

- Stipulations of the Berry Petroleum South Unit Programmatic Agreement (Agreement # AS-11-00017) will be fully implemented in order to fulfill the requirements of Section 106 of the

National Historic Preservation Act and to avoid, minimize, or mitigate adverse effects to National Register eligible cultural sites affected by the project.

- Ground-disturbing activities (road construction and upgrading, well pad construction, pipeline placement, etc.) will not be authorized until cultural resource identification and avoidance procedures have been completed as specified in the Berry Petroleum South Unit Programmatic Agreement (Agreement # AS-11-00017).
- The Cultural Resource Monitoring Plan as specified in the Berry Petroleum South Unit Programmatic Agreement (Agreement # AS-11-00017) will be implemented to evaluate indirect and cumulative effects of the project on cultural resources.
- All personnel, subcontractors, and consultants associated with the project will refrain from collecting, damaging, or impacting cultural resources on the Forest.
- If cultural resources are inadvertently discovered, construction activities will be halted within 100 feet of the discovery and the Forest Service notified. Operations in the area of the discovery will not resume until stipulations of the Forest inadvertent discovery plan have been fulfilled and the authorization to proceed has been received from the Forest Service.

Modified Visual Quality Objectives

- Facilities should incorporate appropriate camouflage coloring, facility design, proper placement, edge "feathering" along roads and vegetation/road boundaries, and/or topographic screening to reduce or eliminate the casually observable effects of well pads, access roads, and pipeline infrastructure.
- Topographic screening and proper placement of well pads and facilities could include hiding well pads and/or facilities behind ridge lines, in natural depressions, behind vegetation, or behind rock outcrops.
- Where feasible, facility design should include combining facilities to minimize the number of structures, burying part of the structure, using natural-appearing forms, or using low-profile structures (where taller structures or tanks would be more visible) to reduce visibility and minimize form contrasts.
- Minimize well pad size to reduce color and line contrasts.
- Design access roads, when feasible, to follow landform or vegetation contours to reduce linear contrasts.
- Plan for and apply interim or intermediate well pad site and access road reclamation to reduce the visual size of surface disturbances and reduce color and line contrasts.
- Avoid excessive side-casting of earth materials from ridgelines and steep slopes to reduce soil color contrasts.

Paleontological Resources

- Site-specific paleontological surveys will be required prior to the start of ground disturbing activities, for proposed development in geologic units (generally PFC Class 4 and 5) deemed likely to contain significant vertebrate fossils and/or noteworthy occurrences of invertebrate, plant, or trace fossils.

- If paleontological surveys show significant paleontological resources are known or likely to be present within a specified area, then paleontological monitoring of surface-disturbing activities within that area will be required.
- Where required for a given area, paleontological monitoring may involve concurrent observation of all construction activities within that area, or may consist of periodic spot-checking and salvage of observed fossil resources, as determined by the Forest Service on a case by case basis. The level of paleontological monitoring deemed necessary by the Forest Service for a given area will depend on the nature and abundance of fossil resources expected to be encountered within that area, and may change (either higher or lower) as construction and paleontological monitoring activities progress.
- Any significant fossils identified during paleontological surveys or monitoring efforts would be collected by a qualified paleontologist, properly documented, and transferred to a Forest Service-approved paleontological repository for curation.
- Paleontological monitors will have authority to temporarily divert operating equipment away from exposed fossils in order to professionally, safely, and efficiently recover the fossil specimens and collect associated data. Monitors would also have authority to temporarily stop construction activities in the vicinity of exposed fossil resources.
- If significant paleontological resources are discovered at a site where or when a paleontological monitor is not present, construction activities would be halted and the Forest Service notified. Ground disturbing operations in the area of the discovery would not resume until authorization to proceed has been received from the Forest Service.

Range

- Fence well pads, as needed and as determined by the Forest Service, to prevent cattle from entering well pad areas.
- Repair all fences damaged by or removed for construction.
- Avoid range improvements such as stock ponds, guzzlers, and other watering amenities, where possible.

Surface Impacts – General/Multi-Purpose

- Detailed site specific restoration plans will be submitted with each application to drill, detailing revegetation strategies and potential sources of additional soil if needed.
- Production facilities will be consolidated when possible, to reduce disturbance from traffic, habitat fragmentation, and total surface area impacts.
- Pump jack engines will be equipped with high-grade mufflers to reduce noise during the operational LOP.
- Cut slopes required for pad construction will not be steeper than 1.5:1. In some cases, additional engineering measures will be implemented to construct drainage systems and culverts in order to divert water flow away from the well pads and roads, prevent erosion, and prevent sediment loading in creek channels due to construction. Such engineered designs will be submitted for review with site-specific APDs.

- Gas gathering pipelines will be located in the 35-foot right-of-way along access roads except as needed on a site-specific basis to resolve safety concerns or comply with other resource mitigation measures.
- For all locations and access roads, the Operator will promptly revegetate all disturbed areas not necessary for future operations with a Forest Service-approved seed mixture. Revegetation would commence immediately after construction, or immediately after the disturbed area is no longer needed for future operations. Reclamation achievement will be evaluated using the standards described in the Reclamation Plan (FEIS Appendix B). Rehabilitation efforts must be repeated if it is concluded that the success rate is below an acceptable level as determined by the Forest Service.
- If vegetation on the well pad fill slope does not provide at least 60% ground cover within 60 days of creating the well pad, engineering practices will be implemented to control erosion. Such engineering measures may include mulching, use of fiber mats, cross slope trenching, contour furrows, rock dams, terracing, or other erosion control practices.
- Final reclamation will occur after a well is no longer productive. Each well will be plugged, capped, and all surface equipment including surface pipelines will be removed at the end of its productive life. Buried pipelines would be plugged at specified intervals and abandoned in place.
- At the end of its productive life, each well pad will be recontoured to mimic the adjacent natural topography using heavy equipment and previously salvaged soil material would be spread over the surface of the pad site. The reclaimed surface will then be reseeded with vegetation; the seed mix would be determined by the Forest Service and will generally mimic native vegetation surrounding the specific well site. Sufficient erosion control is assured when adequate groundcover is reestablished, water naturally infiltrates into the soil, and gullying, headcutting, slumping, and deep or excessive rilling is not observed. Well site reclamation will be performed and monitored in consultation with the ANF, including the control of noxious weeds.

Transportation

- Detailed site specific transportation plans will be submitted for each APD or groups of APDs submitted for review. Transportation plans will include detailed route locations, drawings, gates, signage, erosion control, drainage, road maintenance, etc.
- All existing and new access roads will be maintained and kept in good repair during all drilling, completion, and producing operations associated with the proposed oil and gas wells. Road maintenance will include grading, maintaining drainage, watering (as needed), fixing mud holes, cleaning cattle guards, snow removal, sign maintenance (for signs associated with oil and gas wells or development), etc. Snow removal will be done in a manner approved by the Forest Service in order to reduce road surface loss and erosion.
- New route construction will be the minimum necessary for safely conducting the approved activity. When no longer required for use in the project, new routes will be closed by recontouring to match local topography, scarification and reseeding.
- New access roads and surface-disturbing activities will conform to the BLM Gold Book (BLM 2007) standards and/or Forest Service specifications.

- The road grade for new roads within the Project Area will be 10% or less wherever possible.
- Graveling or capping the roadbed will be performed as necessary to provide a well constructed, safe road.
- Appropriate water control structures for roads will be installed to control erosion.
- New access roads and other disturbed areas that are no longer needed will be restored to near their original condition and Forest Service reclamation procedures will be followed
- The Operator will consult with Duchesne County, the Utah Department of Transportation, and adjacent land managers to ensure that roads serving the Project Area are adequately maintained and repaired.
- All roads constructed by the Operator will be closed to public motorized use through the use of Forest Service approved signs and gates.
- Construction equipment used to construct well pads and roads will be cleaned of soil prior to entering forest lands in order to prevent the spread of noxious weeds.
- Contractors and employees are required to comply with all posted speed limits.
- There will be no major cuts and fills for road construction, or road bridges. If it becomes necessary to install a culvert at some time after approval of the APD, the Operator would submit a Sundry Notice requesting approval from the Forest Service.
- There will be no gates, cattle guards, fence cuts, or modifications to existing facilities without prior consent of the Forest Service.
- In semi-primitive non-motorized/roadless areas, roads will be located, designed, and reclaimed in a manner that minimizes effects to the semi-primitive character of the land.
- All construction/operations traffic will be confined to the approved road ROW and any additional areas as specified in an approved APD. No cross-country travel by vehicles will be allowed.
- If the disturbed road width needs to exceed 35 feet to accommodate larger equipment, intersections, or sharp curves, approval will be required from the Forest Service. Turn-out areas will not be constructed unless deemed necessary for safety reasons and approved by the Forest Service.

Water and Soils

- The Operator will recycle/reuse approximately 70% of produced water generated by the project, using it both for drilling and completions of new wells, or for other off-site projects. The remaining produced water will be sent to a permitted disposal facility.
- Use closed loop drilling to eliminate the need for reserve pits, reduce closure and waste management costs, and reduce potential for contamination from leaking.
- Minimize topsoil removal during drilling activities, where feasible, to minimize disturbance to sensitive soils and vegetation.
- Well sites will be reclaimed back to natural condition by revegetating with biologically active topsoil;
- To prevent erosion of disturbed soils, vegetation and/or structural measures to control erosion will be implemented as soon as possible after initial soil disturbance.

- The operator will prepare and submit a Spill Prevention, Control, and Countermeasure Plan (SPCCP) that would minimize the risk of spills by detailing techniques to prevent spills of drilling, fracturing, or produced fluids, and outlining measures to be taken in the event of a spill.
- Energy dissipaters such as straw bales and silt fences may be required to prevent sediment delivery from disturbed areas to stream channels or floodplains. These structures would be installed during construction, and would be left in place and maintained for the LOP or until the disturbed slopes have revegetated and stabilized.
- To assess the potential impact of the project on Sowers Creek, the Operator will monitor the stream for phenols, boron, nutrients, and sediment-related indicators on a quarterly basis, and provide that information to the Forest Service.

Channel Buffers

- To ensure proper floodplain function and to reduce the potential for delivery of sediment and other pollutants to waterways, an undisturbed vegetative buffer between upland activities and stream channels will be maintained.
- In the case of perennial streams (i.e. Sowers Creek), facilities such as well pads, tank batteries, and compressor stations will be located outside the 100-year floodplain or a distance of 150 feet from the high water line, whichever is greater (as per INFISH recommendations for non-fish-bearing perennial streams).
- In the case of intermittent and ephemeral drainages, a minimum distance of 50 feet will be maintained between facilities (such as well pads, tank batteries, and compressor stations) and the active channel and cutbanks of adjacent vertical terraces. For priority watersheds, classified as impaired by the Utah Division of Water Quality, siting of facilities within 100 feet of intermittent/ephemeral channels will be avoided where feasible; and where it occurs, would be subject to more rigorous monitoring and implementation of erosion control measures.
- New road and pipeline construction within these buffer zones will be minimized and generally limited to perpendicular or near perpendicular crossings of channels. Additional mitigation measures and road maintenance requirements would apply regarding the design of channel crossings, road drainage, erosion control, and dust abatement.

Spring and Riparian Buffers

- A minimum distance of 100 feet will be maintained between surface disturbing activity and springs or seeps, as measured from the outer edge of their associated wetland/riparian vegetation.
- Other than limited cases for road and pipeline crossings, a minimum distance of 100 feet will be maintained between surface disturbing activities and streamside riparian habitat as measured from the outer edge of the riparian vegetation. In the case of perennial streams (i.e. Sowers Creek), the buffer will be 150 feet from the high water line of the channel, or 100 feet from riparian habitat, whichever distance is greater.

Road Drainage Crossings

- Road drainage crossings will be of the typical dry creek drainage crossing type. Crossings will be designed so they would not cause headcutting, siltation, or accumulation of debris in the channel, and so drainages will not be blocked by the roadbed. Plans for crossings will be submitted and subject to Forest Service engineer approval before construction may begin. Other permit requirements/coordination required for crossings may include: U.S. Army Corps of Engineers 404 permitting and State of Utah 401 permitting.
- Open/low water crossings may require improvement by hardening with rock base. Where culvert crossings are deemed necessary, culverts would be sized according to Forest Service engineer and hydrologist direction.
- Culverts in perennial streams will be designed to allow for passage of aquatic organisms.
- Road fill-slopes at stream crossings will require design features such as boulder placements, matting, mulch, reseeding, to prevent erosion.
- Gravel surfacing of the roadbed adjacent to crossings may be required to reduce transport of sediment to stream channels.
- Well pads will not be developed on steep slopes >35%, (including but not limited to NSO slopes), stream corridors, formerly irrigated lands, or highly erodible soils.

Weeds

- Conduct pre-construction surveys in the spring for weed infestations within the site boundaries and along access roads.
- Consult Duchesne County Weeds Department to determine treatment for noxious weeds, if identified.
- Construction vehicles and equipment will be cleaned, power-washed, and free of soil and vegetation debris prior to entry and use of access roads to prevent transporting weed seeds.
- All seed mixtures, erosion control materials, and reclamation materials will be certified weed free.
- Revegetated areas will be monitored following seeding to evaluate the need for supplemental seeding and noxious weed control.
- The ROW and other disturbed areas will be monitored for weed infestations, and new or expanding populations will be controlled or eradicated for the duration of the construction, operation, and reclamation phases.
- The presence of designated weeds in the Project Area requires that the Operator develop and implement management measures to prevent the spread of noxious weeds and install a monitoring system.
- During the construction phase of the project, the Operator will implement an intensive reclamation and weed control program after each segment of project completion. The Operator will reseed all portions of well pads and road and pipeline ROWs not utilized for the operational phase of the project. Reseeding will be accomplished using a Forest Service approved seed mixture. Post-construction seeding applications will continue until determined successful by the Forest Service. Weed control will be conducted through an approved Pesticide Use and Weed Control Plan from the Authorized Officer (AO). Weed monitoring and reclamation measures will be continued on an annual basis (or as frequently as the AO

determines) throughout the LOP. Herbicides shall be selected from those approved for use on the ANF.

Wildlife

Elk and Deer

- Well pad and road construction, road upgrades, and drilling operations will not be conducted between November 15 and April 30 to protect elk winter range.
- Existing guzzlers present near proposed well pads will be reconstructed by the Operator in new locations away from well pads, in order to reduce the impacts of increased traffic and human presence on elk, mule deer, and other wildlife utilizing those structures for drinking.

Goshawk

- If activities are proposed in suitable goshawk habitat, ground surveys will be conducted prior to construction to identify active or potentially active goshawk nest sites.
- If a goshawk nest is discovered within the Project Area, the following mitigation measures will be implemented.
 - Within a 0.5-mile buffer of an active nest, restrict activities and human uses during the active nesting period (March 1–September 15) unless it is determined that the disturbance is not likely to result in nest abandonment.
 - No surface disturbance will be allowed within a 30 acre buffer of a nest.

Golden Eagle

- Although no golden eagle nests have been documented within the Project Area, aerial and/or ground surveys of the proposed Project Area will be conducted prior to construction activities to identify active or potentially active golden eagle nest sites.
- If golden eagle nests are detected within the Project Area, the following mitigation measures will be implemented to protect nesting golden eagles.
 - No permanent surface occupancy will be allowed within 0.5 mile of an active golden eagle nest to reduce the risk of decreased productivity or nest failure, unless topography eliminates the risk of abandonment.
 - Unless topography eliminates the risk of nest abandonment, no temporary project activities can occur within a 0.5 mile buffer of an occupied golden eagle nest between April 30 and August 31.
 - Shield pipeline installation equipment, well sites, and other facilities with camouflage netting, where there is line of sight from active nests to the activity.

Lincoln's Sparrow, Song Sparrow, and Bats

- A 150 foot no surface disturbance buffer will be maintained along each side of Sowers Creek for well pads and new roads, with the exception of needed stream crossings.

- To protect water sources for bats, a 100 foot no surface disturbance buffer will be placed around all springs.

Migratory Birds

- Prior to ground disturbing activities within the migratory bird nesting season (May 15–June 30), surveys for Birds of Conservation Concern (BCC) and Partners in Flight (PIF) priority species will be conducted. If any of these species are detected during the surveys, a nest search will be conducted. If nests are found or are suspected, then no ground-disturbing activities would be allowed from May 15–June 30 within 0.1 mile of the nest or estimated location of the nest.

Sage Grouse

- To reduce potential disturbance to strutting birds (and the likelihood of lek abandonment), nesting birds, and habitat, no well pads or permanent structures will be allowed within 0.6 mile of an occupied lek. This measure would distance structures away from leks that raptors may use for perching.
- To reduce potential disturbance to strutting birds (and the likelihood of lek abandonment), timing restrictions will be required during the breeding season (March 1–May 31) within sage-grouse habitat, and within 0.6 mile of sage-grouse habitat. No project-related vehicles or activities (including routine maintenance, production vehicles, or work-over rigs) will be allowed, from 1 hour before sunrise to 3 hours after sunrise, and from 2 hours before sunset to 1 hour after sunset.
- From March 1 through June 30, no surface-disturbing activities (including construction, drilling, and well flaring) will be allowed for wells located within sage-grouse habitat in order to protect nesting sage-grouse.
- To avoid disruption of sage-grouse migration activities, no well pad construction, road construction, drilling, or work-over rigs will be allowed on ridge tops from November 15 to March 1 within 4 miles of a lek.
- Within 4 miles of a lek, sage grouse habitat will be buffered by 0.6 mile. Within this buffer well pad construction will not exceed an average of one well pad/square mile (640 acres). This mitigation will be applied to the Project Area. Additionally, no more than 5% of sage grouse habitat is allowed to be disturbed within the Project Area. This will reduce the amount of disturbance to sage grouse and maintain the one disturbance/square mile threshold.
- The Anthro Mountain telemetry study has shown that sage-grouse may be using openings in pinyon/juniper during migration events. Therefore within 4 miles of a lek, in openings of the pinyon/juniper (chained or natural openings in pinyon/juniper belt), well pads should be located as close to the edge of the opening as possible.
- To reduce noise levels down to an acceptable level so as not to disturb strutting birds or cause lek abandonment, all wells within 3.1 miles of a lek will be muffled with the latest technology to reduce noise levels from wells down to no more than 45dB at a lek. All wells within 3.1 miles of a lek will have mufflers oriented away from leks.
- To reduce the vantage point that raptors might have by perching on new structures, low-profile tanks will be required for all well pads within sage-grouse habitat.

- Raptor perch avoidance devices will be installed on existing and proposed power poles and tank batteries to reduce potential predation where sage-grouse concerns exist.
- Project-related activities and vehicle access will not be allowed on the Nutters Ridge Road (FSR 333) or the Wire Fence Ridge Road (FSR 332), south of the Operator's current lease area. This will prevent disturbance to breeding, nesting, brood rearing, and wintering sage grouse that might otherwise occur if project-related access along these roads were permitted.